INTERNET ARCHIVE
WaybackMachine

Enter Web Address: `http://` `All` `Take Me Back` Adv. Search Compare Archive Pages
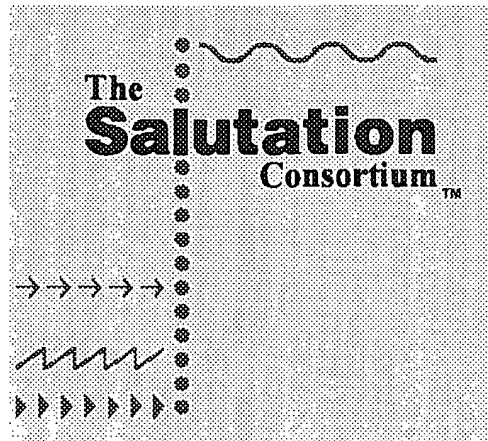
Searched for http://www.upnp.org **61** Results

Note some duplicates are not shown. See all.
* denotes when site was updated.

Search Results for Jan 01, 1996 - May 27, 2004

1996	1997	1998	1999	2000	2001	2002	2003	2004
0 pages	0 pages	0 pages	2 pages	13 pages	14 pages	11 pages	12 pages	0 pages

1999	2000	2001	2002	2003
Oct 12, 1999 *	Mar 01, 2000 *	Feb 02, 2001 *	Jan 21, 2002 *	Jan 27, 2003 *
Oct 23, 1999 *	May 10, 2000 *	Mar 01, 2001 *	Jan 24, 2002	Jan 29, 2003 *
	May 11, 2000	Mar 02, 2001	May 24, 2002 *	Feb 13, 2003 *
	May 19, 2000	Mar 31, 2001	Jun 03, 2002	Mar 26, 2003 *
	May 20, 2000	Apr 02, 2001	Jul 23, 2002 *	Apr 01, 2003
	Jun 20, 2000 *	Apr 04, 2001	Sep 23, 2002 *	Apr 05, 2003 *
	Jun 21, 2000 *	May 15, 2001 *	Sep 25, 2002	Apr 24, 2003
	Aug 15, 2000 *	May 22, 2001	Sep 28, 2002 *	May 28, 2003 *
	Aug 28, 2000 *	May 23, 2001	Nov 20, 2002 *	Jun 07, 2003 *
	Oct 11, 2000 *	Jun 29, 2001 *	Nov 29, 2002	Jun 10, 2003
	Oct 18, 2000 *	Jul 02, 2001	Dec 01, 2002	Jun 19, 2003 *
	Dec 02, 2000 *	Jul 22, 2001		Jun 22, 2003 *
	Dec 12, 2000	Sep 24, 2001 *		
		Nov 30, 2001 *		

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Geographic Computing

Enabling New Markets for Hand Held and Palm-Size Information Appliances

A Salutation White Paper

December 16, 1998
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Good Things Come In Small Packages

When forecasting for the electronics industry, one prediction is a sure thing: *Things will get smaller*!

Miniaturization first began with radios. When transistors replaced vacuum tubes as the method of driving electronic contraptions, it was no longer necessary to gather around the console radio in the living room. The radio became portable. You could take it with you to another room, the back yard, or the park. Sony Electronics, Inc. extended this miniaturization revolution with the introduction of the Walkman® series. Sony and other consumer electronic manufacturers personalized the electronics experience. Not only could you take it with you, but you could do so without disturbing others. These devices were small enough to put in your pocket, and ear phones make the listening private. Now you and your friends could go to the park together and each listen to his/her favorite radio station.[1]

What began with the radio has permeated the industry. Audio cassette tape devices were integrated into the personal radio package. Then Diskman® and like products provided portability for audio CDs. Telephone answering devices, which once required a separate freestanding box, can now be incorporated in the telephone handset. The first portable phones required a satchel to carry the batteries and electronics. The latest mobile phone technology is smaller than a stack of 3x5 cards and weighs in at less than 6 ounces. Even televisions have been miniaturized. You can now experience a football game at the stadium with 50,000 of your closest friends, and still enjoy the replays and close-up camera angles on your hand-held TV.

Computers have also experienced down-sizing. The glass house computer shrunk to fit on your desk top. Your desk top computer shrunk to fit on your lap. And now, what once filled a room can fit in the palm of your hand. Hand-held and palm-sized computers are now all the rage.

Knowing Your Limits

But miniaturization has its limits. For phone technology, the average distance between the ear and the mouth is a constant; the single, one-piece handset has to accommodate the human form.
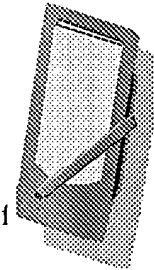
The standard computer, with keyboard input, display output and pointing device navigation has a lower bound. For example, the chicklet-style keyboard in the compressed space of a hand-held computer's form-factor thwarts touch typing. Compressing the screen size forces loss of detail or requires continuous scrolling.

To overcome these limitations, a paradigm shift is occurring away from cloning big brother into miniaturized boxes toward making these smaller devices *information accessories* to your desktop/laptop computer.

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[1] You might argue that all this miniaturization and personalization contributed to the "Me Generation". But this is a technical paper not a study of anthropology. We won't go there.
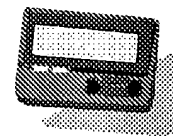
Accessorizing Your Information Base

3Com's PalmPilot® became the first widely recognized PC accessory. Designed to do relatively few things, it does them all well. It does not want to compete with your computer, rather it wants to be a companion to it. Having no physical keyboard, it relies on a touch screen for navigation and input. Basic to the PalmPilot is a personal information manager (PIM) including an address book, scheduler, to-do list and note pad. A synchronizer is provided, keeping the PIM data bases of your palm-sized computer (PPC) and desktop/laptop up to date. The success of the PalmPilot, selling over 3 million units, has launched a flurry of PPC clones and want-a-bes. Included here are Windows CE based products from Casio, Everex, and Philips, plus Sharp's SE-300/500 Mobile Organizers, and the Texas Instrument's Avigo, both based on proprietary designs.
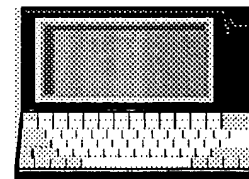
Other devices acting as PC accessories are:

- Upscale pagers sporting varying size displays and keyboards
- PC-Card Organizers (REX Pro® from Franklin)
- Mobile phones, with capability for synching address book with your PC
- Mobile phones, with keyboards and upscale displays for e-mail management
- Wrist watches with built in PC synch and pager messaging
- Hybrid note pad (from Cross Pen Computing) which captures your hand written thoughts in both hard and soft copy

Trying to decide if they are junior laptop computers or palm-sized computers on steroids, hand-held computers (HPCs) top out the PC accessory category. With physical keyboards and color displays, these devices imitate the functionality of the PPCs, then add limited word processor, spread sheet, and other pint-sized versions of business applications. Windows CE version of HPCs are available from Compaq, Hewlett-Packard, LG Electronics, NEC, Philips and Sharp. Psion provides a non-CE device in this class, as well as Sharp through its Zaurus® line.[2]

A central theme of all these PC accessories is mobility and connectivity. They are light weight, often wearable, with multiple means to connect to other computer resources. Whether it be via serial cable, IR port, modem or wireless, all these devices have the potential to tap into a broad range of services.

But with all their functionality, HPCs and PPCs are merely extensions to the businessperson's desktop/laptop computer. Although these devices have shown steady growth in sales, their market penetration is limited to business application and specialized vertical markets. If HPCs and PPCs
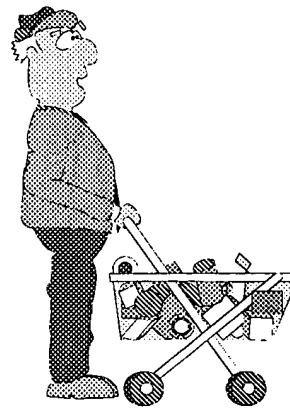
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[2] The HPC market is receiving pressure from the low end of the laptop space. With size and prices of full function laptops shrinking, HPCs will have to find ways to cut cost and provide unique functionality to maintain market presence.

can shed their roll as PC accessories and be re-deployed as *consumer information appliances*, potential sales will sky rocket for all manufacturers. For example, the 3 to 5 million HPC/PPC units shipped to the limited PC accessory market is a far cry from the 150 million mobile phone units shipped to the broader consumer market.
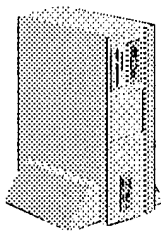
Driving Miss Daisy

What will drive HPC/PPCs from the narrow PC accessories markets to broader consumer information appliance markets? *Geographic Computing*: providing communication from your HPC/PPC to services in the local area. For example:
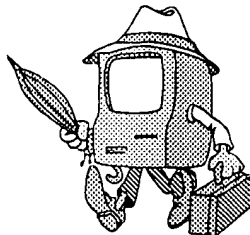
- As you enter the shopping mall, you turn on your HPC/PPC and have instant access to a mall directory, allowing you to locate your favorite store
- As you enter the Sears store, your Sears charge balance is displayed on your HPC/PPC screen
- You enter your bank drive-in. Besides accessing your account balances on your HPC/PPC, you also download a loan application
- To speed up your shopping at the grocery store, you use your HPC/PPC to find the location of Kraft® Macaroni and Cheese
- While entering the freeway, you use your HPC/PPC to access traffic alerts and accident reports
- As you wait for security clearance at the airport, you use your HPC/PPC to access flight departure information

Geographic computing will allow you to use your HPC/PPC to connect to and exchange content with information servers *where you are*. The server may send information to an embedded applications or download unique applets specific to the environment. When you leave the environment, the connection is broken and the information provided by the local server evaporates.[3] Your HPC/PPC searches for and connects with the next server it encounters.

"He l l o!"   "Good by!"

Geographic computing provides more than value to the consumer. Connectivity of this nature provides a new advertising and marketing channel.

- The mall can advertise local store promotions
- Sears can offer good customers instant discounts
- The bank can advertise current loan rates

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[3] Brings a new meaning to the term "vaporware"!

- The supermarket can indicate savings when buying competitive store brands
- Traffic control can show alternate routes and ride-share telephone numbers
- The airport can announce flight arrivals, gate changes and security briefings

Geographic computing has solid value propositions for both the consumer and the service provider:

- **Consumer:** Real-time access to current information when it is needed through the easy to use, instant on, point-and-tap interface of a HPC/PPC. The user can retrieve information when it is top-of-mind, and on the spur of the moment.

- **Service Provider:** Focused advertisement/marketing messages to pre-qualified customers. Geographic computing provides instant contact with consumers already in the store and are ready to buy. Advertising messages can be directed to a known consumer base rather than to the blanket audience provided by news print or web advertising. The service provider can also gain demographic information from consumers visiting the environment.

Dueling Hand-helds

Today's hodgepodge of HPC/PPC form factors, application content and operating environment prevents development of geographic computing -- primarily because of the varying operating systems, screen sizes, vendor/application loyalties and other environmental considerations. To invest in geographic computing today, a department store chain would have to define a single data format and presentation application, assure that all HPC/PPC platforms can implement this definition, port an implementation to all platforms and then distribute the application to all HPC/PPC owners. Now repeat the process for each department stores wishing to use geographic computing, then repeat for all other potential geographic computing service providers. You might be successful, but the time and resources needed to negotiate with all parties would cripple the effort, to say nothing of the resulting low common denominator solution coming from committee design.

An alternative approach is to discover the capabilities of the HPC/PPC as it wanders into a geographic environment, then automatically respond to these capabilities as necessary. A server might use a web browser installed in the HPC/PPC, or download a specialized applet to drive the user interface of the device. In this way, the server uses the best available technologies in the HPC/PPC or supplies its own as required. It is not necessary to get agreement on a single interchange format or application, then port it across all platforms. The resulting approach is not a low common denominator, but can be as generic or specific as the local server wishes.

Discover the Possibilities

Salutation technology provides a means for the local server to discover the capabilities of the HPC/PPC and tailor interactions accordingly. With Salutation, a server can determine the screen size and its graphics and color capabilities. Salutation technology can determine the operating environment, free storage/memory, and applications on board a particular HPC/PPC. With this knowledge, the server can download the appropriate data, applet, etc., to match these capabilities.
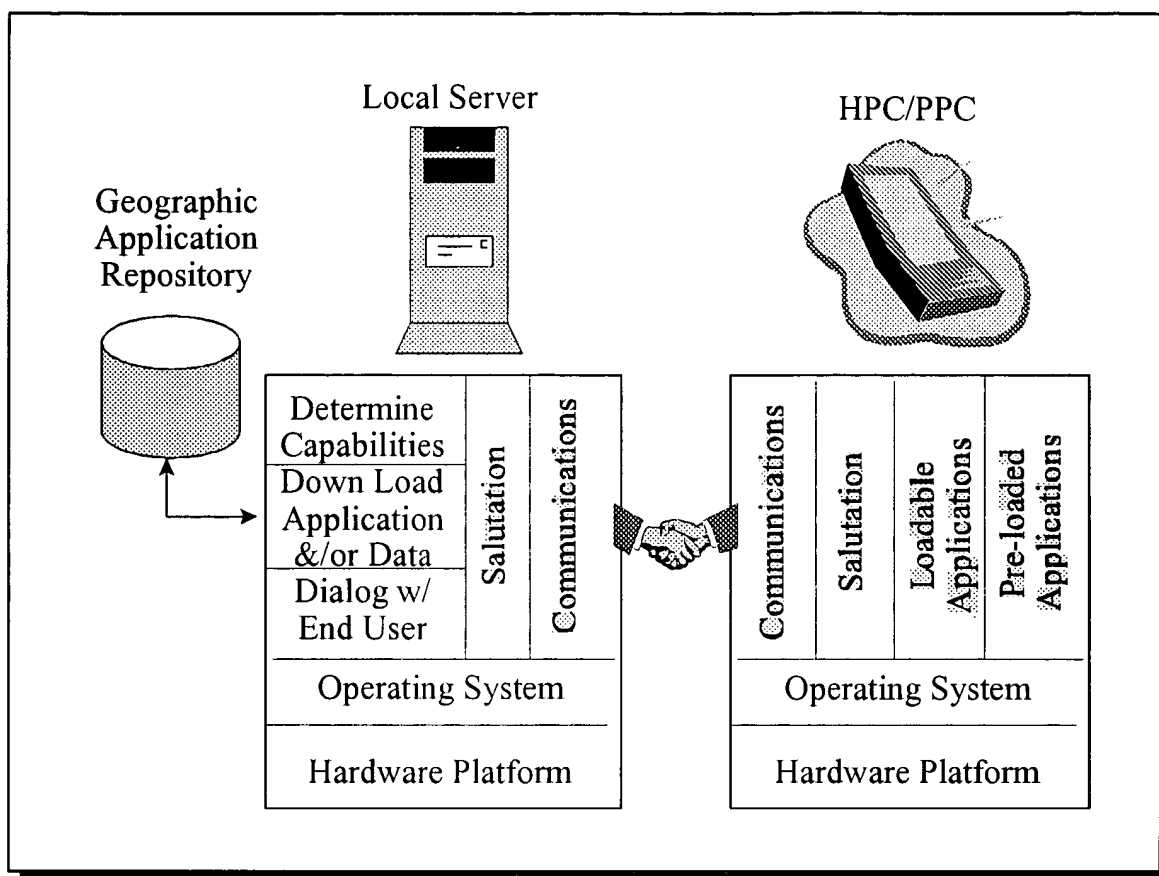
The Salutation technology is a standard, providing a platform and network independent means for determining the capabilities of networked devices, applications and services. The technology was created by a consortium of 30+ information technology companies to solve the problems of *service discovery and utilization* among a broad set of appliances and equipment in an environment of widespread connectivity and mobility. The technology provides a standard method for applications, services and devices to describe and to advertise their capabilities to other applications, services and devices, and to determine the capabilities of other networked entities. Given the diverse nature of target appliances and equipment in an environment of widespread connectivity, the technology is processor, operating system, and communication protocol independent, and allows for scaleable implementations, even in very low-price devices. The Salutation technology also supports basic message management and job control techniques to support information transfer in heterogeneous environments.

With a Salutation base, solution providers can offer users access to information from the device-at-hand, rather than from specialized devices designed for a specific data protocol. A Salutation base provides information to applications and services allowing adjustment of interactions for differing information access appliances. Optional components of the Salutation technology provide a common denominator for controlling the flow of information between uncommon networking protocols.

The Heart Of The Matter

The following figure shows the basic building blocks for the Geographic Computing model. The HPC/PPC is carried by a consumer. It contains a hardware platform and operating system unique to the manufacturer. It also contains a communications stack(s) supporting the hardware options installed (IR, Modem, Wireless, etc.). It may be pre-loaded with applications provided by the manufacturer. For geographic computing, a Salutation technology implementation is added, either loadable for legacy devices or may be pre-loaded in new devices. Finally, there is storage space assigned for loadable applications.

The local server is provided by the merchant, institution, or enterprise wishing to communicate with the consumer using the HPC/PPC. This server is constructed on a hardware platform and operating system selected by the service provider. As is the case with the HPC/PPC, a communication stack(s) supporting the hardware options is installed in the server. To provide the broadest HPC/PPC coverage, the server should support the full range of communications protocols found in HPC/PPC devices. Options are discussed in **"Can We Talk?"** later in this paper. Salutation technology is available on the server for communicating with the HPC/PPC. The basic functions of the server utilize the Salutation technology to determine the capabilities of the HPC/PPC, download the applicable applications and data necessary to communicate in the unique configuration of the HPC/PPC, then carry on a dialog with the end user using the uniquely constructed user interface and communication technique.

Walk Up And Use

When you walk into range of a local server, you turn on the HPC/PPC. Your device establishes a communication link with the local server using the infrared or wireless protocol. The server automatically discovers the capabilities of your HPC/PPC using the Salutation technology. More specifically, the server uses a specific Salutation Protocol command to request the capabilities of the device; the device responds with a Salutation architected data block, called a Service Description Record (SDR) which specifies the capabilities of the device.

The server parses the SDR. Based on the information gathered, the server tailors the way further end user interaction takes place. Here are some examples.

- The SDR indicates the device has an HTML browser. The server sends a command to launch the browser, then sends HTML documents to dialog with the end user. This should be viewed as a fall back solution. See **"What's Wrong With This Picture"** later in this white paper.

- The SDR indicates the device is powered by the WinCE operating system and there is 5 meg of program memory available. The server sends an application, 4 meg in size, to the HPC/PPC designed specifically for the WinCE environment. This application drives the user interface and captures any end user input for processing at the server. The server has a version of the same program for the Palm operating system.

- The SDR indicates the device is powered by the WinCE operating system and there is 3 meg of program memory available. Since the application is 4 meg in size, it can not be used in this device. The server reviews the SDR for the capabilities of the HPC/PPC screen and formats data to be sent directly on it.

To end a geographic computing session, you either power off the HPC/PPC or walk out of the area served by the local server. In either case, any application or data installed in the HPC/PPC is removed. This action returns your HPC/PPC to the condition it was in prior to establishing a session with the local server. The display is cleared, and memory used by the geographic computing session is returned to the memory pool.

Big Foot Is Just A Myth!

The HPC/PPCs are small in every way. As we have noted earlier, the limited footprint for displays and keyboards limit the ability to interface with the user. Memory (RAM/ROM) is also at a premium in these devices.

The Salutation implementation designed for this product family is sensitive to limited memory footprints. It is *not* a full Salutation implementation. It *does not* contain a Salutation Client. As such, the HPC/PPC never requests capabilities from other devices or applications, it only responds to these requests when received from other Salutation enabled equipment such as a local servers. The SDR describing the device's capabilities can, for the most part, be hard-coded at the time the device is manufactured. This is possible because capabilities such as the screen size, pel density, color and graphics capabilities, as well as operating system and input device are fixed. Variables such as free memory, and application content are easily integrated into the SDR by replacing one or more fields in real time.

Applications and data can be readily distributed between the local server and the HPC/PPC via a limited version of a Salutations Service Session. The HPC/PPC implements three separate [DocStore] functional units, one to receive application content, one to receive data content, and one to send data content. The HPC/PPC monitors the first two functional units. When content is received via the Salutation Send Data protocol, the HPC/PPC acts accordingly. When data is to be sent from the HPC/PPC to the local server, it is placed in the third functional unit which is periodically retrieved by the server.

Can We Talk?

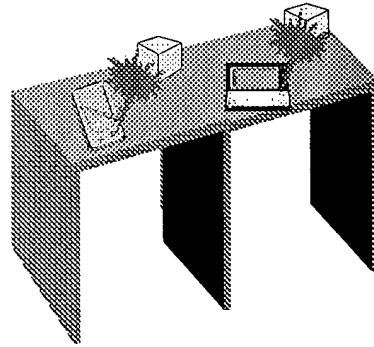Instant real-time communication between the local server and the HPC/PPC is critical for the geographic computing application. Communication must be a no-brainer if it is to be used by the consumer masses. There should be nothing to plug-in, nothing to set up and where possible, it should not restrict the mobility of the end user. Two existing communication technologies meet this criteria; Infrared and wireless.

Infrared

This technology is ubiquitous in the HPC/PPC product family. Even mobile phones are starting to sport infrared (IR) ports for synchronizing with your lap top (i.e., Ericsson DI 27). Beyond initial setup of the HPC/PPC there is nothing else to do. There is nothing to plug-in. Its only limitation is line of sight requirements and limited distance.

To support IR, geographic kiosks are required. These can be placed at mall or store entrances. One form might be a counter with integrated IR ports. A customer places the HPC/PPC on the counter, aims at the IR port and communication begins. Another form might be a column, centrally located, with IR ports embedded around the circumference. Here, customers gather around, pointing their devices at the column.

Wireless

Providing broader mobility for the customer, wireless connectivity is best suited for the geographic computing market. Wireless LANs are being installed in retail stores to support communication with portable point-of-sale terminals and retail clerks. Taping into this infrastructure would enable geographic computing. The drawback: Unlike IR, Wireless technology is not ubiquitous. End users would require an add-on component to achieve wireless interchange. New HPC/PPCs may begin to add wireless functionality to the base unit, but for now, this communications channel would have a low number of users.

What's Wrong With This Picture?

Is all this Salutation technology really necessary to achieve geographic computing? What is wrong with using existing HTML browsers for this application? They exist on most HPCs in today's market and are available as add-on to the PPC product. Why not just send HTML pages to a HPC/PPC that wander into the range of a local server?

To understand this answer, lets look closer at the criteria for interacting with consumers through geographic computing.

- **Speed.** Geographic computing must provide *instant access* to information. Searching for the business' web address (URL) and waiting for slow downloads and screen formatting of HTML in HPC/PPCs will try the patience of users.

- **Image.** Companies, such as retail outlets and banks, wish to present their best image to consumers. Low screen quality and limited (or no) color resolution require a rethink of the traditional HTML page.

- **Ease of Use.** Smaller screen size require excessive scrolling to view traditional HTML pages. Single screen images selected to work in the screen footprint of the device are necessary to avoid frustrating the end user.
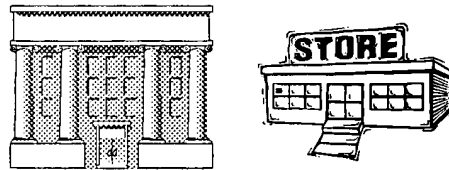
As a result of the sluggishness of HPC/PPC browsers and the lack of readability on the small footprint displays, HTML pages and traditional browsers will be used in geographic computing, but only for entry level and low common denominator connectivity.

It' A Wrap!

Geographic computing meets the needs of today's busy consumer. You retrieve information when you need it. Advanced planning for a shopping trip will be a thing of the past. If you need information while in the store, you turn on your HPC/PPC and get instant access to it. No need to remember the store's URL; you are connected when you turn your device on. The information fits your screen, no need to scroll around. Navigation is point and tap; no need to rummage through complex set up procedures.

Geographic computing meets the needs of today's consumer oriented businesses. Businesses can be in direct communication with their customers while they are at the business location. Information is provided in real-time and can be directed at the consumer's actual needs. Promotions can be offered while the consumer is in the shopping mood and in the shopping environment, increasing sales. Communicating directly with the customer can improve customer service and build customer loyalty.

Efforts are underway to build the geographic computing infrastructure. Vendors are being engaged to construct the HPC/PPC client. The Salutation Consortium's technical committee is describing necessary functional units, and service providers are considering designs for the local server.

Get on board!

Appendix A

Comparison Of HPC/PPC Capabilities

Product	Type	Display Size	Display density	Display Color	Ram	Modem	IR	OpSys
Compaq 2015C	HPC	6.1" x 2.3"	640x240	256 color	20M - 32M	33.6Kbs	Yes	WinCE
Hewelett-Packard 620LX	HPC	8.2" x 6"	640x480	256 color	16M - 32M	None	Yes	WinCE
LG Electronics Phenom Express	HPC	8 1/8 diag.	640x240	256 color	32M	56Kbs	Yes	WinCE
NEC MobilePro 750C	HPC	8" diag.	640x240	256 Color	16M - 32	33.6Kbs	Yes	WinCE
Philips Velo 500	HPC		640x240	16 Gray	16M	28.8Kbs	Yes	WinCE
Sharp Mobilon	HPC	8.2" diag.	640X480	4096 Color	16M	33.6Kbs	Yes	WinCE
Sharp ZR 5800	HPC		320x240	Gray	1624K	2400bps	Yes	Private
Psion Series 5	HPC	5.2"x2"	640x240	Gray	4M - 8M		Yes	Private
Cassiopeia E-10	PPC		240x320	4 Gray	4M - 8M	Optional	Yes	WinCE
Everex Freestyle Manager A-20	PPC		240x320	4 Gray	8M	33.6Kbs	Yes	WinCE
NiNo 32	PPC		240x320	4 Gray	4M - 8M	Optional	Yes	WinCE
Palm III	PPC		160x160		2M		Yes	Palm
Sharp SE-300	PPC		159x240		640K		Yes	Private

Appendix B

Proposed Functional Units for HPC/PPC

Display Functional Unit

Attribute Name	ID	Data Type as Command Attribute	Data Type as Capability Attribute (Compare Function ID)	Global Attribute (default)	Private/Job Attribute
personalityProtocol	10,000	N/A	SET OF PersonalityProtocol (setIntIntersect)	No	No/No
supportedCommand	10,001	N/A	SET OF SupportedCommand (setIntDoesContain)	No	No/No
displayDataFormat	10,010	DataFormat	SET OF DataFormat (setIntDoesContain)	No	No/No
imageCompAlgorithm	10,011	ImageCompAlgorithm	SET OF ImageCompAlgorithm (setIntDoesContain)	No	No/No
imageByteFillOrder	10,012	ByteFillOrder	SET OF ByteFillOrder (setIntDoesContain)	No	No/No
imageResolution	10,013	ImageResolution	SET OF ImageResolution (setIntDoesContain)	No	No/No
displaySize	10,020	DisplaySize	SET OF DisplaySize (setIntDoesContain)	Yes	No/No
colorDensity	10,030	ColorDensity	Set of ColorDensity (setIntDoesContain)	No	No/No
touchResolution	10,040	Touch Resolution	Set of TouchResolution (setIntDoesContain)	No	No/No

Operating Environment

Attribute Name	ID	Data Type as Command Attribute	Data Type as Capability Attribute (Compare Function ID)	Global Attribute (default)	Private/Job Attribute
personalityProtocol	10,000	N/A	SET OF PersonalityProtocol (setIntIntersect)	No	No/No
supportedCommand	10,001	N/A	SET OF SupportedCommand (setIntDoesContain)	No	No/No
operatingSystem	10,010	OperatingSystem	SET OF OperatingSystem (setIntDoesContain)	No	No/No
inputClass	10,011	InputClass	SET OF InputClass (setIntDoesContain)	No	No/No
onboardApplications	10,012	OnboardApplications	SET OF OnbordApplications (setIntDoesContain)	No	No/No
memorySize	10,020	MemorySize	SET OF MemorySize (setIntDoesContain)	No	No/No
availMemorySize	10,020	AvailableMemorySize	SET OF AvailableMemorySize (setIntDoesContain)	No	No/No